CADMUS

7/19/19

U.S. Environmental Protection Agency
Contract Management Division
26 W. Martin Luther King Drive
Cincinnati, OH 45268

Attention: Camille Davis

Subject: Contract No. EP-C-15-022, WA 4-96
Work Plan and Budget, Including Amendment 1

Dear Camille:

Enclosed please find the revised work plan and budget for the above-referenced Work Assignment. The period of performance for this Work Assignment is from 7/1/19 through 6/30/20. Below is a summary of the funding for the project under this work assignment.

Work Assignment	Work Plan Hours	Work Plan Cost	Work Plan Fee	Work Plan Dollars
4-96, Including Amendment 1	800	$64,613	$5,048	$69,661
Total	800	$64,613	$5,048	$69,661

The Cadmus Program Manager for this contract is Frank Letkiewicz; Mary Ellen Tuccillo serves as the Cadmus Project Manager for this Work Assignment. A Conflict of Interest Certification was included with the original work plan and remains valid.

Please note that the attached work plan contains a tailored QASP for your consideration.

Copies of this submission have been sent to the Project Officer and Contracting Officer's Representative. If you need any additional information or have any questions, please do not hesitate to contact me at the below number.

Sincerely,

Joel DeMasi
Contracts Manager

copy to: Nancy Parrotta, Project Officer
Bruce Suchomel, Work Assignment Contracting Officer's Representative

Work Plan

Support for Region 8 Underground Injection Control Dewey-Burdock Permitting Actions

Contract No. EP-C-15-022
Work Assignment No. 4-96, Amendment 1

Period of Performance: July 1, 2019 – June 30, 2020

Prepared for:
Ms. Nancy Parrotta, Project Officer
Mr. Bruce Suchomel, Work Assignment Contracting Officer's Representative
U.S. Environmental Protection Agency
Office of Ground Water and Drinking Water
1201 Constitution Ave, NW, EPA East
Washington, DC 20460-0003

Prepared by:

The Cadmus Group LLC
100 5th Avenue, Suite 100
Waltham, MA 02451-8727
Contract No. EP-C-15-022

Work Assignment No. 4-96, Amendment 1

Support for Region 8 Underground Injection Control Dewey-Burdock Permitting Actions

1.0 INTRODUCTION

The Safe Drinking Water Act (SDWA) established the Underground Injection Control (UIC) Program to ensure the safe injection of fluids into the subsurface in a manner that does not endanger current or future underground sources of drinking water (USDWs). EPA Region 8 has undertaken several draft UIC permitting actions under 40 CFR 124, 144, and 146 at the Dewey-Burdock Site near the Black Hills in South Dakota. The specific permitting actions include: a draft Class III UIC permit authorizing injection of fluid into uranium ore zones for in-situ recovery (ISR) of uranium and a draft Class V permit to dispose of treated ISR waste fluids generated at the site. Region 8 has also proposed approving an aquifer exemption for the uranium-bearing zones at the Dewey-Burdock Site. The Nuclear Regulatory Commission (NRC) has issued a Radioactive Materials Handling License for the site under separate authority.

The Class III draft permit specifies conditions for injection of fluid into uranium ore bodies for the Dewey-Burdock Site. The Class III injection wells are constructed within ISR wellfields and completed in aquifers containing uranium ore bodies. Because uranium recovery will involve mobilization of uranium in USDWs, the Region 8 UIC Program also proposed approving the exemption of portions of the USDWs where the uranium bodies are located.

The applicant has already presented a comprehensive conceptual site model of pre-ISR geohydrologic and geochemical conditions at the site in the UIC permit application. The draft permit requires the applicant to conduct more detailed geohydrologic and geochemical assessment for each wellfield before the EPA will issue authorization to commence injection for uranium recovery. After the completion of uranium recovery in each wellfield, the NRC License requires the wellfield groundwater to be restored to pre-ISR concentrations for ISR contaminants.

To ensure the adequate protection of the USDWs outside the wellfield aquifer exemption boundaries, the Region 8 UIC Program has determined that it is appropriate to propose in a second Class III draft permit a condition directing the applicant to further develop the conceptual site model to include site geohydrologic and geochemical conditions through all ISR lifecycle phases, including ISR operations, groundwater restoration and post-restoration conditions when the natural groundwater flow conditions have resumed.

Because the Black Hills project site is located in an area of historic interest to many tribes, there has been a lengthy tribal consulting process associated with the permitting activities. At this time, the tribal consultations are not complete, and the Region 8 UIC Program has requested assistance in conducting the remaining communications and consultations with tribes in a respectful manner.

Under WA 3-96, Cadmus developed several draft documents with criteria and supporting background information for a robust conceptual site model and groundwater geochemical model for all life cycle phases of the ISR process. Cadmus will revise and finalize these documents under this WA 4-96. Additionally, Cadmus will support the development of responses to public comments submitted on the draft permits and support Region 8 on tribal consultations.

2.0 TECHNICAL APPROACH

Task 0: Work Plan, QA Documents, and Monthly Progress Reports

Cadmus is submitting this work plan and budget as a requirement of this task. The work plan includes a proposed schedule of deliverables, a staffing plan, and a description of the tasks outlined under this work assignment. The performance work statement for this work assignment requests the work plan provide a cost estimate and level of effort (LOE) estimate by task. A table providing this information can be found in 'Section 6 – Budget' of this work plan.

Cadmus will also prepare and submit monthly technical and financial progress reports to the EPA Work Assignment Contracting Officer's Representative (WACOR) under this task. The work assignment requests that progress reports break out costs by task. Cadmus proposes to provide task level information outside of the regular monthly progress report if requested by the EPA WACOR.

The work under Tasks 1-3 of this work assignment are a continuation of WA 3-96, and the collection, use and analysis of data under this work assignment will be identical to that conducted under WA 3-96. Cadmus will continue to follow the quality assurance procedures approved in the supplemental quality assurance project plans (SQAPP) completed under Task 0 of WA 3-96 and approved by EPA on December 18, 2018, as well as the programmatic quality assurance project plan for the contract. Should any changes to the data collection and analysis tasks occur, Cadmus will notify the Contracting Officer (CO) and the WACOR and prepare a new SQAPP. Cadmus will put all data collection and analysis for the affected tasks on hold until the SQAPP is approved.

If any anticipated event under this work assignment is expected to incur a cost of $20,000 or more, Cadmus will immediately notify EPA of this expected cost. Expenses for travel, subcontractor work, events, meetings, and any other labor or direct costs that will be funded by EPA[1] would be included in this estimate. Cadmus will proceed with work associated with this event only after EPA has approved the costs and upon receiving notification of approval from the EPA WACOR. The EPA organization providing the planning, if different from the organization responsible for this work assignment, is responsible for the approval.[2]

Estimated Labor Hours for Task 0: 75 hours

Task 1: Conceptual Site Model and Groundwater Geochemical Model

Under this Task, Cadmus will complete work started under WA 3-96, in which Cadmus developed draft criteria and supporting background documents for a geochemical site conceptual model and hydrogeologic and geochemical model as well as acceptance criteria. The purpose of the geochemical modeling is to evaluate the potential for rebound of wellfield contaminants after post-ISR restoration, migration of contaminants beyond the aquifer exemption boundary, and natural attenuation of contaminant concentrations.

The criteria for the geohydrologic and geochemical conceptual site model (developed under Subtasks 1.1, 1.2, and 1.3) and the groundwater geochemical model (developed under Subtasks 1.4, 1.5, 1.6, and 1.7) are related to each other and to development of the final UIC permit. Therefore, Cadmus will continue to work closely with the WACOR to ensure that these materials are of an appropriate level of

[1] Cadmus assumes that "funded by EPA" refers strictly to funding under this work assignment.
[2] Cadmus will coordinate any external approvals through the EPA WACOR of this work assignment.

detail to meet the goals of each product while meeting EPA's time and budgetary constraints for issuing the final permits.

Much of the work for this Task was completed under WA 3-96. Under this work assignment, Cadmus will incorporate EPA comments on the draft documents for Tasks 1.6 and 1.7, which are under EPA review. Cadmus will then do a final review across the deliverables for Tasks 1.2, 1.3, 1.5, 1.6, and 1.7 to ensure technical consistency. Cadmus will coordinate closely as they complete all of the deliverables described below and will deliver the complete set of revised documents within twenty (20) business days after receiving comments from the EPA on the draft documents developed under Subtasks 1.6 and 1.7 of WA 3-96.

Subtask 1.1: The contractor shall conduct a review of technical literature to identify and analyze the specifications for an appropriate geohydrologic and geochemical conceptual site model that includes characterization of a uranium ISR site after the ISR operations and groundwater restoration have been completed and identifying information needed to calibrate the groundwater geochemical model described in Subtask 1.5.

This subtask has been completed. No work is anticipated under this subtask.

Subtask 1.2: The contractor shall develop criteria to create an appropriate geohydrologic and geochemical conceptual site model that includes characterization of a uranium ISR site after the ISR operations and groundwater restoration have been completed and identify information needed to calibrate the groundwater geochemical model described in Subtask 1.5.

This subtask was largely completed under WA 3-96. Under this work assignment, Cadmus will update and incorporate site maps developed under WA 3-96. Cadmus will also review the draft document delivered under WA 3-96 against the deliverables for Subtasks 1.3, 1.5, 1.6, and 1.7 to ensure that terminology and technical concepts are consistently described among all five documents and that the documents provide complementary information.

Subtask 1.3: Develop a background document explaining the rationale behind the conceptual site model criteria.

This subtask was largely completed under WA 3-96. Under this work assignment, Cadmus will review the draft document delivered under WA 3-96 against the deliverables for Subtasks 1.2, 1,5, 1.6, and 1.7 to ensure that terminology and technical concepts are consistently described among all five documents and that the documents provide complementary information.

Subtask 1.4: The contractor shall conduct a review of technical literature to identify and analyze the specifications for an appropriate groundwater geochemical model to evaluate the potential for ISR contaminants to cross the aquifer exemption boundary.

This subtask has been completed. No work is anticipated under this subtask.

Subtask 1.5: The contractor shall develop criteria to create an appropriate groundwater geochemical model to evaluate the potential for ISR contaminants to cross the aquifer exemption boundary and identify information needed to calibrate the groundwater geochemical model.

This subtask was largely completed under WA 3-96. Under this work assignment, Cadmus will review the draft document delivered under WA 3-96 against the deliverables for Subtasks 1.2, 1.3, 1.6,

and 1.7 to ensure that terminology and technical concepts are consistently described among all five documents and that the documents provide complementary information.

Subtask 1.6: Develop a background document explaining the rationale behind the groundwater geochemical model criteria.

Under WA 3-96, Cadmus developed a draft background document to support and explain the groundwater geochemical model criteria developed in Subtask 1.5. This draft document is currently under review by the EPA. Upon receipt of EPA comments, Cadmus will revise the draft. Cadmus will then finalize the document, doing a consistency review against the deliverables for Tasks 1.2, 1.3, 1.5, and 1.7 to ensure that terminology and technical concepts are consistently described among all five documents and that the documents provide complementary information.

Subtask 1.7: Develop an acceptance criteria document for the groundwater geochemical model.

Under WA 3-96, Cadmus developed a draft checklist of acceptance criteria to provide guidance in model development, formulation of model inputs and evaluation of model results to determine if the modeling is robust enough to meet project needs. This draft document is currently under review by the EPA. Upon receipt of EPA comments, Cadmus will revise the draft. Cadmus will then finalize the document, doing a consistency review against the deliverables for Subtasks 1.2, 1.3, 1.5, and 1.6 to ensure that terminology and technical concepts are consistently described among all five deliverables and that the documents provide complementary information.

Estimated Labor Hours for Task 1: 160 hours

Task 2: Administrative support with tribal consultation tasks

Under this task, Cadmus will facilitate communication between EPA and tribes identified as potential stakeholders in the Dewey-Burdock permitting decision. The purpose of the communications is to ensure that all interested tribal stakeholders are made aware of the opportunity to meet with EPA about the contacts and schedule and follow up on the meetings between the tribes and EPA.

Subtask 2.1: Generate the tribal contact mailing list.

Under WA 3-96, Cadmus created an up-to-date contact list for the list of tribes provided by EPA. The list included all 38 of the interested tribes located in Region 8 as well as the Cheyenne River Sioux and the Ogallala Sioux. Cadmus verified the names and contact information (mailing address, phone number, email address) of the current Tribal Historic Preservation Officers (THPOs), tribal leaders (chairman or president), and environmental directors and provided the updated list to EPA.

Under WA 4-96, Cadmus will make any additional updates to contact information to incorporate new information as per direction from EPA; it is anticipated that any such corrections would be minor (e.g., incorporation of an updated name, address, or phone number) and would not entail further calls to tribes for verification. Cadmus will deliver any requested updates within three (3) business days after receiving the information from the EPA.

Subtask 2.2: Prepare a tribal consultation letter for each tribe on the mailing list from a template letter provided by the EPA.

Under WA 3-96, Cadmus created individual tribal consultation letters using a template provided by EPA. Using the MS Word mail merge function, Cadmus generated letters addressed to each tribal

leader with a courtesy copy to the tribal environmental director and THPO and sent them to EPA in MS Word format for printing and signature. Cadmus will work with EPA to update the letter if requested; however, Cadmus' budget estimate assumes that only minimal support will be requested. Cadmus will deliver any requested updates within three (3) business days after receiving the information from EPA.

Subtask 2.3: Email the PDFs of the signed letters and save emails to PDF files.

After the letters have been signed, the EPA will scan them to PDF files and email them back to Cadmus along with enclosures. Cadmus will then email the signed letters and enclosures to the tribal leaders on the contact list developed under Subtask 2.1, providing courtesy copies to the environmental directors and THPOs. Cadmus will save the emails as PDF files and make them available to the EPA for inclusion in the administrative record for the permits. Cadmus will email the files within three (3) business days of receiving the pdf files and any other necessary information (e.g., contact information updates) from EPA.

Subtask 2.4: Forward any emails from tribes to the EPA and save the emails as PDF files.

If Cadmus receives emails from any tribe, Cadmus will immediately forward them to the EPA WACOR and copy the Technical Contact. Cadmus will also save the emails as PDF files and provide these to the EPA.

Subtask 2.5: Ongoing list of all communication with tribes.

Cadmus will maintain a list of all communication with the tribes. Each record of correspondence will include the name of the tribe, the name of the person, the date of communication, the type of communication (whether by call, voice message, or email), and a brief note describing the content of the communication. The list of communications will be updated within 1 business day of the communication event. Updated lists of recent communication will be provided to the EPA and will be saved on a SharePoint site. Cadmus will notify the EPA WACOR via email when the list is updated.

Subtask 2.6: Identify tribes interested in consultation with the EPA and identify designated tribal contacts.

Several tribes have already requested consultation meetings with the EPA related to the Dewey-Burdock permits, and it is expected that others will respond to EPA's letters offering meetings. Under this subtask, Cadmus will follow up with any tribes that do not reply to the letters that are sent under Subtask 2.3.

Ten (10) business days after the letters are emailed to the tribal contacts, Cadmus will call the tribal offices that have not yet replied to the letters. During this call, Cadmus will determine whether the tribe wishes to schedule a consultation meeting the EPA. If a meeting is desired, Cadmus will identify the designated tribal contact for the Dewey-Burdock consultation process. The EPA has already identified the designated tribal contact for the Cheyenne River Sioux tribe; however, Cadmus will confirm this contact. Cadmus will update the list of tribes and designated contacts interested in scheduling consultations within 1 business day of receiving new information from a tribe.

Subtask 2.7: Refer questions and comments to the EPA as appropriate.

Cadmus anticipates that most of the conversations with the tribes will be to communicate information about planning the consultation. However, it is possible that questions will arise that Cadmus is unable to answer or to which it would be inappropriate to provide a response. Cadmus will refer the

person to the EPA Technical Contact, forward the questions to the EPA Technical Contact, and notify both the EPA WACOR and the Technical Contact of the question. Cadmus recognizes that the use of these lands is a sensitive issue for many tribes and will conduct all communication bearing this in mind. Cadmus will provide the notification to EPA within 1 business day of the referral.

Subtask 2.8: Schedule tribal consultation meetings.

After the tribes interested in scheduling a consultation meeting and their designated contacts have been identified, Cadmus will schedule consultation meetings under this subtask. Cadmus will offer to the tribes lists of potential meeting dates and times provided by the EPA Technical Contact. Communication may be done by email or by phone. For any communications about available meeting times done by phone, Cadmus will send a follow-up email message documenting the information that was conveyed during the call. Once a tribe schedules a consultation meeting, Cadmus will immediately (same day if possible) email the EPA WACOR and copy the Technical Contact so that they may begin travel arrangements.

Cadmus will include all communication performed under this subtask in the communication list described in Subtask 2.5, and save all emails as described under Subtask 2.4. The EPA anticipates this task will continue until 6 weeks before the issue date of the final permit decision.

Subtask 2.9: Prepare a final tribal consultation letter for each tribe on the mailing list from a template final tribal consultation letter provided by the EPA.

When the EPA has determined that the opportunity for tribal consultation is drawing to a close, the EPA WACOR will provide Cadmus with: the template for a final tribal consultation letter, a list of tribes that will receive the letter and an updated Region 8 tribal contact list. Cadmus will then create the individual final tribal consultation letters, addressed to the tribal leaders with courtesy copies addressed to the tribal environmental directors and THPOs, and send these prepared copies to the EPA in MS Word format for printing and signature. Cadmus will send the file with the letters to EPA within three (3) business days after receiving the tribal mailing list from EPA.

Subtask 2.10: Email the PDFs of the signed letters and attachments and save emails to PDF files.

The EPA will sign the final consultation letters and email them back to Cadmus, along with the enclosures to the letter. Cadmus will then email the letters and enclosure to the tribal leaders, along with courtesy copies for the environmental directors and THPOs. Cadmus will send the emails within three (3) business days of receipt of the PDF files from EPA. Cadmus will save the emails as PDF files and make them available to the EPA. Cadmus will handle any email communications from the tribes as described in Subtask 2.4.

Subtask 2.11: Follow-up calls to tribes to confirm receipt of the final consultation letter.

Five (5) business days after emailing the final consultation letters, Cadmus will contact the tribal offices to confirm that the tribal leader has received the final consultation letter and offer a final opportunity to schedule a consultation meeting with the EPA. Cadmus will handle email communications from the tribes as described in Subtask 2.4 and will include communications under this subtask in the communications list described in Subtask 2.5.

Estimated Labor Hours for Task 2: 160 hours

Task 3: Development of the Response-to-Comments Document for the Region 8 UIC Permitting Actions at the Dewey-Burdock Uranium In-Situ Recovery Site

Under this task, Cadmus will support the EPA in developing responses to public comments submitted on the draft permits. The final response-to-comments document will be part of the administrative record for the final permits. Cadmus understands that Region 8 will handle the more technically detailed comments and that Cadmus is tasked with handling the large number of less technical comments already addressed in documents the EPA developed for the administrative record. Cadmus will deliver the response-to-comments document within fifty-five (55) business days after receiving the documents listed under Subtask 3.1 from the EPA and after receiving technical direction from EPA to begin the work.

Subtask 3.1: Review of documents provided by the EPA and identify responses to comments that are available in these documents.

Under this subtask, Cadmus will identify available information that can be used to formulate responses to public comments. It is expected that most of the public comments can be addressed by information that exists in the permit record, including the following materials (all of which will be provided by the EPA WACOR):

- The public comments, which are categorized under the 43 topics,
- The draft UIC Class III and Class V permits and associated fact sheets,
- The Record of Decision for the proposed aquifer exemption,
- The draft cumulative effects analysis document,
- The draft environmental justice analysis document, and
- The draft document proposing the EPA's plan for complying with Section 106 of the National Historic Preservation Act.

The comments, which the WACOR will provide to Cadmus, are in a summary document that categorizes each issue raised into one of 43 unique topic areas. (Cadmus developed the comment summary document under Contract EP-C-15-022 Work Assignment 2-94.) Cadmus will review the public comments in the context of the materials identified above to identify specific text or information that responds to each comment/category of comments.

Subtask 3.2: Develop a framework document for the response-to-comments.

Under this subtask, Cadmus will begin to develop a framework document that will eventually become the final response-to-comments document for the Dewey-Burdock UIC permits. Based on the PWS for this WA, Cadmus understands that the response-to-comments document will contain 45 topic-specific sections, including 43 topics identified while developing the comment summary document, and two additional topics—for comments related to the National Environmental Policy Act (NEPA) and comments related to the Endangered Species Act. These latter two categories of comments are among comments currently categorized as "Comments about other government agencies or regulatory programs (NEPA, the Clean Air Act, the Nuclear Regulatory Commission, etc.)" under Comment category #38. Cadmus will review the comment summary document to identify appropriate comments to include in each of these new comment categories.

Cadmus will prepare a brief introduction to each comment topic. Cadmus will work with the EPA WACOR to determine the appropriate level of detail but assumes that "a brief introduction" would comprise no more than a few paragraphs per topic, such that the reader can understand the full scope of

the issues raised and, as needed, refer to the individual comments to gain the nuance of each issue raised. Where appropriate, Cadmus will combine similar topics, or prepare separate introductions for more complex topics within a comment category.

Cadmus will provide the EPA with a "shell" of the response-to-comments document that contains topic headers for each category of comments (or combinations of categories, as appropriate), with the final three sections of the document pertaining to:

- Comments about Crow Butte (Comment category #42),
- Comments that generally oppose the Dewey-Burdock project (i.e., in Comment category #1), and
- Comments on issues outside the scope of the UIC Program's regulatory authority.

The document will be formatted to allow creation of a table of contents and organized to reflect the EPA's needs for the document.

Subtask 3.3: Include responses to comments that are addressed in the draft documents the EPA developed for the administrative record.

Following completion of the framework document and approval of its organization and format, Cadmus will insert relevant response text from the documents in the administrative record that Cadmus will review under Subtask 3.1 or, as appropriate, from the documents Cadmus developed under Task 1.

It is expected that the responses to most of the public comments raised will be available in information previously included in the administrative record, and the responses will either clarify the issue for the commenter (e.g., related to how the permit conditions or the aquifer exemption will address the commenter's concerns about the project) or answer questions. Based on the reviews Cadmus performs under Subtask 3.1, Cadmus will insert appropriate response text into each section of the response-to-comments document (i.e., following the introductory paragraphs Cadmus prepares under Subtask 3.2).

Cadmus will also identify comments or concepts expressed in the public comments that cannot be fully addressed by the information available in the administrative record. Cadmus will discuss the format of providing this information but anticipates that these comments would be highlighted in the draft response-to-comments document to facilitate understanding the comment in the context of other information and the inclusion of the EPA-developed responses into the final response-to-comments document. (As described in the PWS, the EPA will complete the response-to-comments document and address any remaining concepts and comments.)

Before proceeding with this effort, Cadmus will discuss with the EPA how specific or detailed the responses should be. However, Cadmus assumes that the level of detail will be commensurate with the introductory paragraphs prepared under Subtask 3.2.

Cadmus understands that it will not provide responses for a few topic areas, including:

- Comments about Crow Butte, which will be addressed by EPA Region 7.
- Comments that generally oppose the Dewey-Burdock Project but did not include specific information applicable to the UIC Program to which the EPA can respond.
- Comments on issues outside the scope of the UIC Program, including comments related to ten topics identified in the PWS: hydraulic fracturing; general comments about uranium mining, the effects of past uranium mining, or concerns about the use of uranium in nuclear power generation and nuclear weapons; comments about the price of or demand for uranium; concerns about

Azarga; benefits to the local community, county, state, or the country; other topics unrelated to the UIC draft permits or aquifer exemptions; or the cost or technical feasibility of treating/remediating contaminated groundwater.

Cadmus can propose text for generic responses that collectively addresses all of the comments in these last two types of comments for inclusion in the document. The text could communicate that the EPA acknowledges/appreciates the comment and refer the reader to other parts of the response-to-comments document for specific information about the permitting approach.

At the conclusion of work under all 3 subtasks, Cadmus will deliver a Word document containing introductions to the comment topics (that are developed under Subtask 3.2) and appropriate response text (developed under Subtask 3.1), and that highlights comments or comment concepts that could not be addressed by the information in the documents that the EPA provides (developed under Subtask 3.3). Cadmus will also include any QA documentation generated while tracking comments under the appropriate response section in the response-to-comments document.

Estimated Labor Hours for Task 3: 405 hours

3.0 SCHEDULE AND DELIVERABLES

The period of performance for this work assignment, including Amendment 1, is from July 1, 2019 to June 30, 2020. A schedule for this work assignment is shown below. Cadmus will notify the WACOR immediately if, at any time, it determines that the schedule will not be met for any reason.

No.	DELIVERABLE	DATE DUE
Task 0: Work Plan and Monthly Progress Reports		
0.1	Work plan, budget, QAPP and QA supplemental	According to contract
0.2	Monthly progress and financial reports	Monthly
Task 1: Conceptual Site Model and Groundwater Geochemical Model		
	Conference call/web conference to discuss progress	Completed
1.1	Annotated bibliography for the conceptual site model in searchable Adobe Acrobat format	Completed
1.2	The criteria document for the conceptual site model in word-searchable Adobe Acrobat format from which text may be copied and pasted.	Within 20 business days after receiving comments from the EPA on Subtask 1.6 and 1.7 documents.
1.3	Background document for the conceptual site model criteria in word-searchable Adobe Acrobat format and Microsoft Word format.	Within 20 business days after receiving comments from the EPA on Subtask 1.6 and 1.7 documents.
	Final versions of deliverables under Subtasks 1.1, 1.2 and 1.3 addressing comments from the EPA.	Within 20 business days after receiving comments from the EPA on Subtask 1.6 and 1.7 documents.
	Conference call/web conference to discuss progress	Completed
1.4	Annotated bibliography for the groundwater geochemical model in searchable Adobe Acrobat format.	Completed
1.5	The criteria document for the groundwater geochemical model in word-searchable Adobe Acrobat format from which text may be copied and pasted.	Within 20 business days after receiving comments from the EPA on Subtask 1.6 and 1.7 documents.
1.6	Background document for the groundwater geochemical model criteria in word-searchable Adobe Acrobat format and Microsoft Word format	Within 20 business days after receiving comments from the EPA on Subtask 1.6 and 1.7 documents.
1.7	Acceptance criteria document for the groundwater geochemical model in word-searchable Adobe Acrobat format and Microsoft Word format	Within 20 business days after receiving comments from the EPA on Subtask 1.6 and 1.7 documents.

No.	DELIVERABLE	DATE DUE
	Final versions of deliverables under Subtasks 1.4, 1.5, 1.6 and 1.7 addressing comments from the EPA.	Within 20 business days after receiving comments from the EPA on all final Task 1 documents.
Task 2: Administrative Support with Tribal Consultation Tasks		
2.1	The final tribal contact list containing contact information for each tribal leader, the tribal environmental director and THPO for each tribe on the mailing list provided by EPA.	Within 3 business days after receiving the tribal mailing list from the EPA.
2.2	An MS Word file of the tribal consultation letters ready for the EPA to print and route for signature.	Within 3 business days after finalizing the tribal contact list.
2.3	Email pdf files of the signed consultation letters and attachments (received from the EPA) to each tribal leader, courtesy copy the tribal environmental director and THPO and save each email as a pdf file.	Within 3 business days of receiving the pdf files of the from the EPA.
2.4	Forward all emails from tribes to the EPA, save the emails as pdf files and make the pdf files available to the EPA.	Forward emails to the EPA within 1 business day of receiving the email from a tribe.
2.5	An ongoing list of communication with tribes including the information indicated in Subtask 2.5; make the list available to the EPA.	Update list within 1 business day of the communication event.
2.6	A list of tribes and designated tribal contact for each tribe interested in scheduling consultation meetings with the EPA, updated as needed; make the list available to the EPA.	Update list within 1 business day of receiving information from tribe.
2.7	Notification to the EPA of any questions or comments from a tribe the Contractor deems appropriate to refer to the EPA.	Within 1 business day of the referral.
2.8	Immediate notification to the EPA when a tribe schedules a consultation meeting.	The same day of hearing from the tribe, if possible.
2.9	An MS Word file of the final consultation letters ready for the EPA to print and route for signature.	Within 3 business days after receiving the tribal mailing list from the EPA
2.10	Email pdf files of the signed final consultation letters and attachments (received from the EPA) to each tribal leader, copy the tribal environmental director and THPO and save each email as a pdf file.	Within 3 business days of receiving the pdf files of the scanned signed letters from the EPA.
2.11	Follow-up calls to tribes after emailing the final consultation letter.	Begin calls after 5 business days of emailing the final consultation letter, completing the task within 10 business days of emailing the final consultation letter.

No.	DELIVERABLE	DATE DUE
Task 3: Development of the Response-to-Comments Document for the Region 8 Underground Injection Control Permitting Actions at the Dewey-Burdock Uranium In-Situ Recovery Site		
3.1	An MS Word document containing introductions to comment topics with areas flagged for the EPA where the responses to some comments or comment concepts were not addressed by the information provided in the draft documents.	Within 55 business days after receiving the documents listed under Subtask 3.1 from the EPA.
3.2	Any QA documentation generated while tracking comments under the appropriate response section in the Response-to-Comments document, as applicable.	At the time deliverable 3.1 is submitted.

4.0 PERSONNEL

Dr. Mary Ellen Tuccillo, a Cadmus Senior Scientist, will serve as the Cadmus Project Manager, providing day-to-day oversight of projects activities and budget and providing technical leadership. Dr. Tuccillo, who managed WA 3-96, has more than 20 years of experience in research and consulting in the earth and environmental sciences. She has conducted research on microbially mediated iron redox processes at a U.S. Geological Survey Toxic Substances Hydrology site and has in-depth knowledge of the processes (geochemical and microbial) controlling the fate of contaminants in the subsurface. Dr. Tuccillo supported EPA's development of regulations for UIC Class VI wells for geologic carbon sequestration and developed associated technical guidance. She has supported EPA in Class VI permit application reviews, evaluating site characterization data and evaluating the adequacy of that information to establish site suitability and form the basis of area of review numerical modeling. Dr. Tuccillo was a lead author on the EPA's national-level assessment of the relationship between hydraulic fracturing activities and drinking water, leading the chapter on wastewater management. She also managed a project investigating the use of Fenton's chemistry for the in-situ chemical oxidation of PCB-contaminated soils. She holds a B.S. and M.S. in geology and a Ph.D. in environmental sciences, with a specialty in aqueous geochemistry.

Ms. Shari Ring, a Cadmus Senior Associate, will serve as Deputy Project Manager and provide senior technical support and ensure that efforts under this work assignment are consistent with efforts under other Cadmus UIC Program-related work assignments. Ms. Ring has been involved in every aspect of Cadmus' support of the Class VI Rule, including rulemaking support, preparing technical issue papers, and implementing the rule. She is currently supporting EPA in its review of Class VI permit applications to inject carbon dioxide for GS. Ms. Ring also leads Cadmus' supports to EPA Region 9's UIC Program on the implementation of a comprehensive plan to ensure that California's Class II UIC program comes into compliance with the aquifer exemption provisions of SDWA. Specifically, she leads the review of information about geology, hydrology, local drinking water supplies and sources, and oil and gas exploration activities in aquifer exemption requests for compliance with the aquifer exemptions criteria at 40 CFR 146 and the development of Records of Decision on EPA's decisions regarding each aquifer exemption.

Mr. Frank Letkiewicz, a Cadmus Principal, is the Cadmus Program Manager for this contract, and will provide technical senior review and contractual oversight with the EPA Project Officer. Mr. Letkiewicz has 40 years of experience as an environmental scientist specializing in projects involving health effects assessments, exposure assessments, and environmental policy analysis.

Ms. Donna Jensen, a Cadmus Principal, is the Cadmus Quality Assurance Manager for this contract and will be responsible for ensuring the full implementation of all applicable QA activities required under this work assignment and as provided in the Cadmus Quality Management Plan.

Mr. Andrew Somor, a Senior Associate at Cadmus, will provide technical support under Task 1. Mr. Somor specializes in providing support to EPA and states in clean water program implementation. He has served as project manager and technical lead on dozens of projects involving watershed and water quality modeling, statistical analysis, and geospatial data analysis to guide the restoration and protection of impaired and threatened waters. Mr. Somor has academic training in hydrology and experience with multiple EPA-supported watershed and water quality models used for Total Maximum Daily Load (TMDL) development, wastewater discharge permitting, and nonpoint source pollution management, including the Hydrologic Simulation Program – Fortran (HSPF), Soil and Water Assessment Tool (SWAT), Simplified Method Program for Multiple Discharges (MultiSMP), System for Urban Stormwater Treatment and Analysis IntegratioN (SUSTAIN), BATHTUB, CE-QUAL-W2, and Environmental Fluid Dynamics Code (EFDC). Mr. Somor is committed to making scientific methods and findings accessible to a broad audience and has served as lead author and developer of several user-friendly guidance documents and tools for prioritizing watersheds for point and nonpoint source pollution management, water quality monitoring, and watershed protection efforts.

Ms. Druanne Cote, M.P.H., a Cadmus Associate, will provide technical support for this work assignment in compiling and vetting data for Task 1 and managing communications with tribes for Task 2. She provided significant contributions to the 2007, 2011 and 2015 Drinking Water Infrastructure Needs Survey and Assessment (DWINSA) surveys, including the 2011 Alaska Native Village and American Indian DWINSA surveys. She has participated in field surveys of several tribal drinking water systems in Montana as part of the 2011 DWINSA, inventoried Class V underground injection control wells for EPA Region 8 on the Confederated Salish Kootenai Tribes' Flathead reservation in Montana and managed a project to conduct inspections to identify Class V wells on tribal lands in EPA Region 5. Ms. Cote has also previously managed projects focused on the development of implementation tools for EPA and tribal drinking water systems and continues to provide support on a survey effort to collect data related to operations and maintenance costs at tribally-owned utilities. Recently Ms. Cote coordinated and led multiple phone interviews with staff from tribal drinking water and wastewater systems in an effort to document case studies of sustainable management practices at tribal utilities.

Dr. Karen Sklenar, a Cadmus Senior Associate, will serve as the Quality Assurance Lead Reviewer for this project and will provide quality assurance review for all deliverables on this work assignment. She will report directly to the QA Manager for this contract and not to the Cadmus Project Manager. Dr. Sklenar has over 27 years of experience in the area of water quality. She has a strong understanding of water chemistry, aquatic microbiology, and water treatment. Her experiences with The Cadmus Group and, before that, helping implement New York State's drinking water program, have given her a comprehensive understanding of drinking water issues and regulations. She has supported EPA during preparation of numerous guidance manuals and supporting documents related to drinking water regulations and has performed QA on many more. Dr. Sklenar is currently the Cadmus Quality Control Officer (QCO) for Cadmus' Technical Support for Assessment and Watershed Protection (TSAWP) contract with U.S. EPA's Office of Water. In that capacity, she is responsible for ensuring the implementation of all applicable QA activities required under the contract, including assisting the Cadmus Task Order Lead with developing QA plans and selecting product reviewers.

Mr. Alex Taylor, a Cadmus Research Analyst, will provide technical support for this work assignment. Mr. Taylor has previously assisted in reviewing information on geology, hydrology, and oil

and gas exploration activities in aquifer exemption requests in California for compliance with the UIC program. He provides GIS support for developing aquifer exemption records of decision, as well as for the aquifer exemptions tracking system. He also assisted with reviewing the guidance document on mechanical integrity testing and has helped synthesize analytical method information for the EPA's Water Contaminant Information Tool. Mr. Taylor holds a B.A. in Geology.

All other personnel listed in the budget will provide research and analysis support or will perform contract and/or accounting functions.

5.0 RISK MANAGEMENT STRATEGY

In coordination with the WACOR, Cadmus will support EPA in carrying out the various activities identified in this work plan. If EPA requires significant changes in Cadmus' technical approach or if the magnitude of the comments received are greater than that projected in this work plan, additional labor hours and funding may be required. In addition, Cadmus' ability to meet the schedule set forth in this work plan is contingent upon timely receipt of comments and feedback from EPA.

Because there may be unforeseen aspects of this work assignment, Cadmus will maintain close and constant communication with the WACOR to discuss any problems as they arise, following the procedures identified in the Quality Assurance Surveillance Plan (Section 7.0).

6.0 BUDGET

This work plan reflects the professional labor hours that are needed to perform the tasks under this work assignment. The budget for this work assignment is attached and reflects the total level of funding Cadmus estimates will be necessary to perform the work described in this work plan. The table below provides an estimated breakdown of cost and LOE by task for this work assignment.

LOE and Cost by Task

Task Number	Task Name	Estimated LOE	Estimated Cost
Task 0	Work Plan, QA Documents, and Monthly Progress Reports	75	$8,360
Task 1	Conceptual Site Model and Groundwater Geochemical Model	160	$17,665
Task 2	Administrative Support with Tribal Consultation Tasks	160	$12,265
Task 3	Development of the Response-to-Comments Document for the Region 8 Underground Injection Control Permitting Actions at the Dewey-	405	$31,371
Total		**800**	**$69,661**

7.0 QUALITY ASSURANCE SURVEILLANCE PLAN

Performance Requirements	Measurable Performance Standards	Surveillance Methods	Incentives/Disincentives
Programmatic Requirement: Secondary Data: Cadmus will develop products based on the best available information sources, or on such sources as directed to use by the WACOR.	Cadmus will document the choice of data sources used and the reasons for the choice; the basis on which the quality of the data were evaluated; and, where possible, the quality of the data themselves.	The WACOR will verify that Cadmus has documented the choice of data used and characterized its quality.	More than two work assignments per contract period where the contractor does not meet the measurable performance standard will be considered unsatisfactory performance and will be reported as such in the CPARS Performance Evaluation System under the category of **Management**. Two or fewer work assignments per contract period where the contractor does not meet the measurable performance standard will be considered satisfactory performance and will be reported as such in the CPARS Performance Evaluation System under the category of **Management**.
Technical Documents: Cadmus will develop guidance and other technical documents that communicate engineering, scientific, and related concepts clearly and accurately, and that are appropriately phrased for the target audience.	Cadmus will develop and employ a QA process to ensure that the content of technical documents is accurate and clearly stated, and that the format and layout are appropriate to the audience(s) and the subject matter. Information in the documents will be referenced to its original source. Final products to be published by EPA will be developed using the processes and requirements included in the most up to date EPA or OW publishing guidance document. Information to be disseminated by EPA will meet the requirements of OMB's "Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity for Information Disseminated by Federal Agencies" (67 FR 8451).	The WACOR will review all products for technical accuracy; format and layout; and consistency with the SDWA and other applicable laws and regulations. Cadmus will identify what sections of the SDWA or other laws and regulations are applicable to this document.	

Performance Requirements	Measurable Performance Standards	Surveillance Methods	Incentives/Disincentives
Cost Control Standard: The Cadmus Project Manager will monitor project status and will provide monthly progress reports indicating the level of budget utilized and estimating the budget needs for the upcoming reporting period. Cadmus will identify the QA measures undertaken in each reporting period through the monthly progress reports. Cadmus will maintain close communication with the WACOR regarding project and budget status and will notify the WACOR immediately in cases where issues impacting project cost are identified. As needed, Cadmus will work with the WACOR to develop a risk management strategy to identify and address any specific project element(s) that adversely impact the proposed work plan. This strategy will identify the risks associated with failure to resolve the issue(s). Cadmus will work with the WACOR to assess and prioritize any remaining tasks and develop an analysis of alternative solutions.	The Cadmus Project Manager will manage costs to the level of the approved ceiling on each individual WA. The Cadmus Project Manager will notify the EPA WACOR and the Cadmus Program Manager will notify the EPA Project Officer and EPA Contracting Officer when 75% of the approved funding ceiling for any particular WA is reached.	The EPA Project Officer will routinely discuss the work progress and contract level and individual work assignment expenditures with the Cadmus Program Manager. The WACOR will maintain regular contact with Cadmus' designated Project Manager to discuss progress and expenditures and will review and verify expenditures and technical progress before invoice payments are authorized.	If the contractor does not meet the measurable performance standards per work assignment per contract period, it will be assigned a rating of Unsatisfactory in CPARS under the category of **Cost Control**. A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of Cost Control if the contractor meets the measurable performance standards and accurately reports the costs in the progress reports according to the requirements in the "Reports of Work" attachment to the RFP.

Performance Requirements	Measurable Performance Standards	Surveillance Methods	Incentives/Disincentives
Schedule Standard: Cadmus will provide services and submit deliverables in accordance with approved work assignment milestones and deliverable schedules. The Cadmus Project Manager will notify the WACOR immediately if, at any time, it determines that the schedule will not be met for any reason.	Cadmus will adhere to the schedule of deliverables established in Section 3.0. Cadmus and the WACOR will establish revised deliverable due dates as needed, through technical direction. Cadmus will maintain close communication with the WACOR throughout the period of performance. Unless a schedule or milestone is amended or modified by an approved EPA action, a deliverable that is received 7 days past the due date will be considered unsatisfactory performance for that deliverable.	EPA will closely monitor work assignment milestone and deliverable schedules and review the Contract Monthly Progress Reports and any special reporting requirements to compare actual delivery dates to those approved in work assignments or as amended by technical direction. EPA will notify Cadmus when it becomes apparent that an established schedule will not be met.	If the contractor does not meet the measurable performance standards more than twice per work assignment per contract year it will be assigned a rating of Unsatisfactory in CPARS under the category of **Schedule**. A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of **Schedule** if the contractor meets the measurable performance standards.
Document Development: Cadmus will provide documents that are technically and factually accurate and suited to the intended audience.	Products intended for publication by EPA will be developed using the processes and requirements included in the most up to date EPA or OW publication guidance document. Information to be disseminated by EPA will meet the requirements of the QMP and contract-level QAPP and, if applicable, the supplemental QAPP for the WA.	The WACOR will review drafts to assess technical accuracy and editorial quality. The WACOR will collate all comments by EPA and external reviewers of draft documents and will provide Cadmus with a consistent list of all inaccuracies and needed edits and corrections in the initial review of draft documents.	If the contractor does not meet the measurable performance standards per work assignment per contract year it will be assigned a rating of Unsatisfactory in CPARS under the category of **Technical (Quality of Product)**. A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of **Technical (Quality of Product)** if the contractor meets the measurable performance standards.

EP-C-15-022
EPA Work Assignment No. 4-96
Period Of Performance: July 1, 2019 - June 30, 2020

Support for Region 8 Underground Injection Control Dewey-Burdock Permitting Actions (Revised Work Plan)

DIRECT LABOR	Hours			Total	Est. Cost
Full-Time Labor					
Professional Level 4	269				
Professional Level 3	26				
Professional Level 2	108				
Professional Level 1	397				
Part-Time Labor					
Professional Level 4	0				
Professional Level 3	0				
Professional Level 2	0				
Professional Level 1	0				
	800			$60,821.06 [a]	$60,821 [a]

OTHER DIRECT COSTS	Quantity			Total [b]	
IT & Telecom	800	Hours		$3,792.00	
Total, Other Direct Costs	-			$0.00	$3,792 [b]

TRAVEL	Quantity			Total [c]	
Airfare	-	Trips		$0.00	
Ground	-	Trips		$0.00	
Lodging	-	Trips		$0.00	
Meals	-	Trips		$0.00	
Misc	-	Trips		$0.00	
Local Travel	-	Trips		$0.00	
					$0 [b]

Subcontractors	LOE			Total [c]	
None	-	Hours		$0.00	
	-	Hours		$0.00	
	-	Hours		$0.00	
	-			$0.00	
					$0 [c]

	Hours			Total	
Intersegment Cadmus Labor	-	Hours		$0.00	
	-				$0

Total Cost			$64,613
Fixed Fee	$6.31	Fee per hr	$5,048
Total Cost + Fee			$69,661
Total Hours			800
Average Hourly Rate			$87.08

[a] Direct Labor costs include Overhead, Fringe, and G&A
[b] Other Direct Costs and Travel costs include G&A
[c] Subcontractor costs include Material Handling

CERTIFICATION CONCERNING CONFLICTS OF INTEREST

THE CADMUS GROUP LLC

Contract No.: EP-C-15-022 Work Assignment No.: 4-96

In accordance with Cadmus' Conflict of Interest (COI) plan and the above cited contract, The Cadmus Group LLC (Cadmus) is required to include a certification concerning potential conflicts of interest with the submission of each work plan. Before submitting the conflict of interest certification, Cadmus shall search its records accumulated, at a minimum, over the past three years immediately prior to the receipt of the work assignment or similar tasking document. Since services are being provided under the above cited contract, you are required to certify to the following.

1. ORGANIZATIONAL CONFLICTS OF INTEREST:

a) To the best of your knowledge and belief, no actual or potential organizational conflicts of interest exist.

Signature: Mary Ellen Tuccillo Date: 7/19/19

Typed Name: Mary Ellen Tuccillo

***** COMPLETE EITHER a. OR b. *****

b) To the best of your knowledge and belief, all actual or potential organizational conflicts of interest have been reported to The Cadmus Group LLC. Please attach a letter detailing such actual or potential conflicts of interest, and the steps you propose to mitigate or avoid them.

Signature: _____ Date: _____

Typed Name: _____

2. PERSONNEL CONFLICTS OF INTEREST:

This is to certify that personnel who perform work under the work assignment, or relating to the work assignment, have been informed of their obligation to report personal and organizational conflicts of interests to you. Attach a letter detailing any personnel conflicts of interest, if any.

Signature: Mary Ellen Tuccillo Date: 7/19/19

Typed Name: Mary Ellen Tuccillo

3. FUTURE CONFLICTS OF INTEREST:

This is to certify that you will promptly report to The Cadmus Group LLC any organizational or personnel conflicts of interest that may arise during the performance of this work assignment.

Signature: Mary Ellen Tuccillo Date: 7/19/19

Typed Name: Mary Ellen Tuccillo